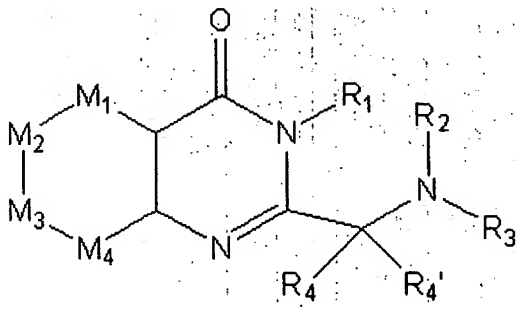
In the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

1. (Withdrawn) A method for treating or preventing cancer in a subject comprising administering a treatment effective amount of a compound belonging to Formulae I, II, III, IV, V, VI, VII, VIII, IX, X, XI, or XII to a subject in need thereof, wherein

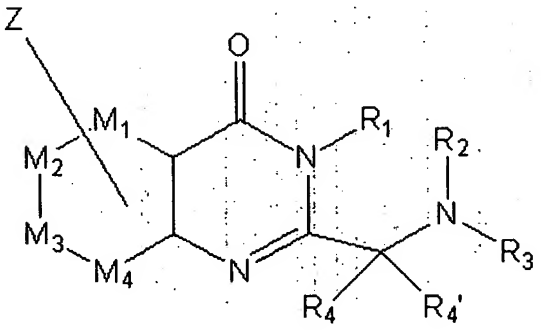
Formula I



where M_1, M_2, M_3 and M_4 are each independently selected from the group consisting of carbon, nitrogen, sulfur, oxygen residues and/or an atomic null such that a fused bicyclic ring system providing valence satisfaction and chemical stability is achieved; substitutions at positions $M_1 - M_4$ on the above atoms may be hydrogen or halogen, such as fluorine, chlorine or bromine, or carbon-linked substituents such as methyl, ethyl, propyl, isopropyl and higher alkyl and aryl analogs, or nitrogen-linked substituents including amine, methylamine, dimethylamine or higher secondary or tertiary alkyl or aryl amines, or oxygen-, sulfur- and selenium-linked substituents including hydroxyl, sulfhydryl and selenylhydryl and alkyl and aryl ether analogs thereof, or silicon-, phosphorous- or boron-linked substituents including

alkyl or aryl substitutions at these residues, wherein in all cases, linking atoms and linking-atom substituents are as required for valence satisfaction and chemical stability; R_1 may be any atom or substituent other than halogen including hydrogen, methyl, ethyl, benzyl, aryl and substituted analogs thereof; R_2 and R_3 are each independently chosen to be hydrogen, or substituted oxygen-, carbon-, nitrogen- or sulfur-linked substituents such that valence satisfaction and chemical stability are achieved; R_2 and R_3 may be covalently linked to give a set of monocyclic *aza*-cycles; R_4 and $R_{4'}$ may be independently hydrogen, carbon-, oxygen-, nitrogen- or sulfur-linked substituents including methyl, ethyl, isopropyl, higher alkyl and aryl substituents, hydroxyl, sulfhydryl, alkyl and aryl ethers and thioethers, amine, methyl amine, dimethyl amine and higher alkyl and aryl secondary and tertiary amines, wherein in all cases, substitutions are chosen such that valence satisfaction and chemical stability are achieved; R_4 and $R_{4'}$ may be covalently linked to give a set of cyclic compounds;

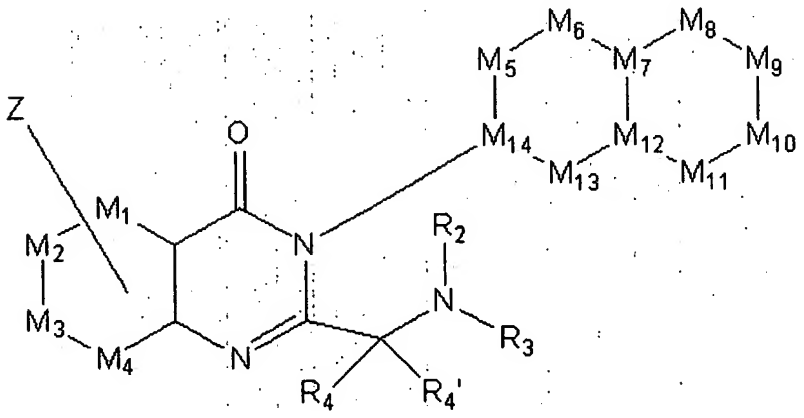
Formula II



where M_1, M_2, M_3 and M_4 are each independently selected from the group consisting of carbon, nitrogen, sulfur, oxygen atoms and/or an atomic null such that a fused bicyclic ring system providing valence satisfaction and chemical stability is achieved; single and multiple substitutions by the substituent(s) Z at positions M_1 – M_4 on the above designated carbon, nitrogen and sulfur atoms may be hydrogen or halogen, such as fluorine, chlorine or bromine, or carbon-linked substituents such as methyl, ethyl, propyl, isopropyl and higher alkyl and

aryl analogs, or nitrogen-linked substituents including amine, methylamine, dimethylamine or higher secondary or tertiary alkyl or aryl amines, or oxygen-, sulfur- and selenium-linked substituents including hydroxyl, sulfhydryl and selenylhydryl and alkyl and aryl ether analogs thereof, or silicon-, phosphorous- or boron-linked substituents including alkyl or aryl substitutions at these atoms, wherein in all cases, linking atoms and linking-atom substituents are as required for valence satisfaction and chemical stability; R_1 may be any residue other than halogen, including hydrogen, methyl, ethyl, benzyl, aryl and substituted analogs thereof; R_2 and R_3 are each independently chosen to be hydrogen, or substituted oxygen-, carbon-, nitrogen- or sulfur-linked substituents such that valence satisfaction and chemical stability are achieved; R_2 and R_3 may be covalently linked to give a set of monocyclic *aza*-cycles; R_4 and $R_{4'}$ may be independently hydrogen, carbon-, oxygen-, nitrogen- or sulfur-linked substituents including methyl, ethyl, isopropyl, higher alkyl and aryl substituents, hydroxyl, sulfhydryl, alkyl and aryl ethers and thioethers, amine, methyl amine, dimethyl amine and higher alkyl and aryl secondary and tertiary amines, wherein in all cases, substitutions are chosen such that valence satisfaction and chemical stability are achieved; R_4 and $R_{4'}$ may be covalently linked to give a set of cyclic compounds;

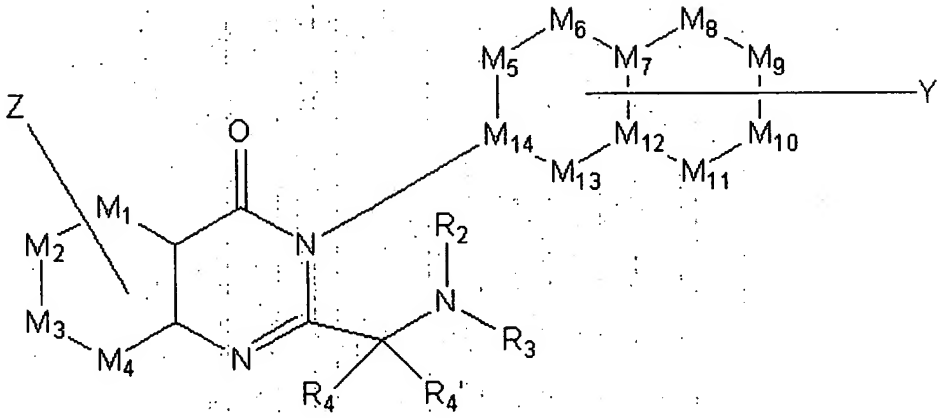
Formula III



where M_1, M_2, M_3 and M_4 are each independently selected from the group consisting of carbon, nitrogen, sulfur, oxygen residue and/or an atomic null such that a fused bicyclic ring system providing valence satisfaction and chemical stability is achieved; single and multiple substitutions by the substituent(s) Z at positions M_1 – M_4 on the above designated carbon, nitrogen and sulfur atoms may be hydrogen or halogen, such as fluorine, chlorine or bromine, or carbon-linked substituents such as methyl, ethyl, propyl, isopropyl and higher alkyl and aryl analogs, or nitrogen-linked substituents including amine, methylamine, dimethylamine or higher secondary or tertiary alkyl or aryl amines, or oxygen-, sulfur- and selenium-linked substituents including hydroxyl, sulfhydryl and selenylhydryl and alkyl and aryl ether analogs thereof, or silicon-, phosphorous- or boron-linked substituents including alkyl or aryl substitutions at these atoms, wherein in all cases, linking residues and linking-atom substituents are as required for valence satisfaction and chemical stability; M_5-M_{14} may be carbon, nitrogen, oxygen or sulfur or any residue other than hydrogen or halogen and, in certain embodiments, may be either a moiety where M_5, M_6, M_7, M_8, M_9, M_{10}, M_{11}, M_{12}, M_{13} and M_{14} are each independently selected from the group consisting of carbon, nitrogen, sulfur, oxygen atoms and/or an atomic null such that a monocyclic or bicyclic ring system providing valence satisfaction and chemical stability are achieved; R_2 and R_3 are each independently chosen to be hydrogen, or substituted oxygen-, carbon-, nitrogen- or sulfur-linked substituents such that valence satisfaction and chemical stability are achieved; R_2 and R_3 may be covalently linked to give a set of monocyclic *aza*-cycles; R_4 and $R_{4'}$ may be independently hydrogen, carbon-, oxygen-, nitrogen- or sulfur-linked substituents including methyl, ethyl, isopropyl, higher alkyl and aryl substituents, hydroxyl, sulfhydryl, alkyl and aryl ethers and thioethers, amine, methyl amine, dimethyl amine and higher alkyl and aryl secondary and tertiary amines, wherein in all cases, substitutions are chosen such that valence satisfaction

and chemical stability are achieved; R_4 and $R_{4'}$ may be covalently linked to give a set of cyclic compounds;

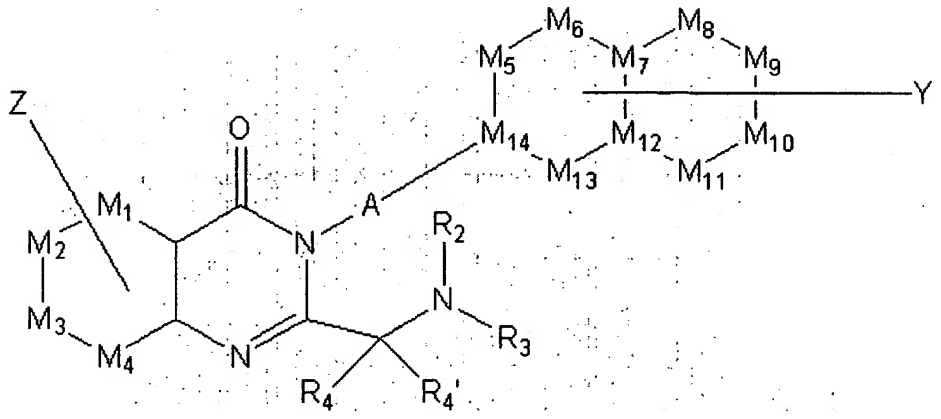
Formula IV



where M_1, M_2, M_3 and M_4 are each independently selected from the group consisting of carbon, nitrogen, sulfur, oxygen residue and/or an atomic null such that a fused bicyclic ring system providing valence satisfaction and chemical stability is achieved; single and multiple substitutions by the substituent(s) Z at positions M_1 – M_4 on the above designated carbon, nitrogen and sulfur atoms may be hydrogen or halogen, such as fluorine, chlorine or bromine, or carbon-linked substituents such as methyl, ethyl, propyl, isopropyl and higher alkyl and aryl analogs, or nitrogen-linked substituents including amine, methylamine, dimethylamine or higher secondary or tertiary alkyl or aryl amines, or oxygen-, sulfur- and selenium-linked substituents including hydroxyl, sulfhydryl and selenylhydryl and alkyl and aryl ether analogs thereof, or silicon-, phosphorous- or boron-linked substituents including alkyl or aryl substitutions at these atoms, wherein in all cases, linking residues and linking-group substituents are as required for valence satisfaction and chemical stability; M_5-M_{14} may be carbon, nitrogen, oxygen or sulfur or any atom other than hydrogen or halogen and, in certain embodiments, may be either a moiety where M_5, M_6, M_7, M_8, M_9, M_{10}, M_{11}, M_{12}, M_{13} and M_{14} are each independently selected from the group consisting of carbon, nitrogen, sulfur,

oxygen atoms and/or an atomic null such that a monocyclic or bicyclic ring system providing valence satisfaction and chemical stability are achieved; furthermore, single and multiple substitutions by the substituent(s) Y at positions $M_5 - M_{14}$ on the above designated carbon, nitrogen and sulfur atoms may be hydrogen or halogen, or substituted oxygen-, carbon-, nitrogen- or sulfur-linked substituents including methyl, ethyl, isopropyl, higher alkyl and aryl substituents, hydroxyl, sulfhydryl, alkyl and aryl ethers and thioethers, amine, methyl amine, dimethyl amine and higher alkyl and aryl secondary and tertiary amines such that valence satisfaction and chemical stability are achieved; R_2 and R_3 are each independently chosen to be hydrogen, oxygen-, carbon-, nitrogen- or sulfur-linked substituents including methyl, ethyl, isopropyl, higher alkyl and aryl substituents, hydroxyl, sulfhydryl, alkyl and aryl ethers and thioethers, amine, methyl amine, dimethyl amine and higher alkyl and aryl secondary and tertiary amines for valence satisfaction; R_2 and R_3 may be covalently linked to give a set of monocyclic *aza*-cycles; R_4 and $R_{4'}$ may be independently hydrogen, carbon-, oxygen-, nitrogen- or sulfur-linked substituents including methyl, ethyl, isopropyl, higher alkyl and aryl substituents, hydroxyl, sulfhydryl, alkyl and aryl ethers and thioethers, amine, methyl amine, dimethyl amine and higher alkyl and aryl secondary and tertiary amines, wherein in all cases, substitutions are chosen such that valence satisfaction and chemical stability are achieved; R_4 and $R_{4'}$ may be covalently linked to give a set of cyclic compounds;

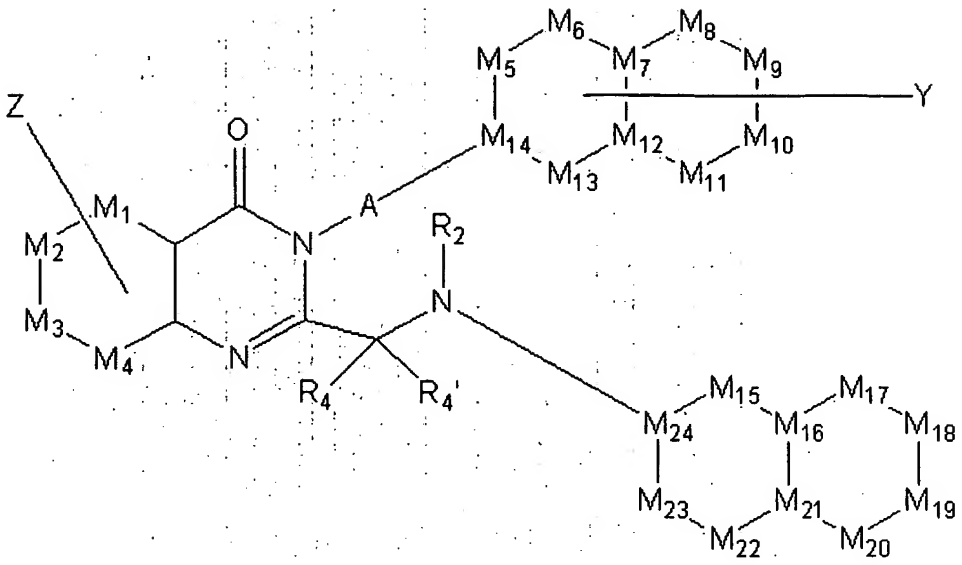
Formula V



where M_1, M_2, M_3 and M_4 are each independently selected from the group consisting of carbon, nitrogen, sulfur, oxygen residue and/or an atomic null such that a fused bicyclic ring system providing valence satisfaction and chemical stability is achieved; single and multiple substitutions by the substituent(s) Z at positions M_1 – M_4 on the above designated carbon, nitrogen and sulfur atoms may be hydrogen or halogen, such as fluorine, chlorine or bromine, or carbon-linked substituents such as methyl, ethyl, propyl, isopropyl and higher alkyl and aryl analogs, or nitrogen-linked substituents including amine, methylamine, dimethylamine or higher secondary or tertiary alkyl or aryl amines, or oxygen-, sulfur- and selenium-linked substituents including hydroxyl, sulfhydryl and selenylhydryl and alkyl and aryl ether analogs thereof, or silicon-, phosphorous- or boron-linked substituents including alkyl or aryl substitutions at these atoms, wherein in all cases, linking atoms and linking-atom substituents are as required for valence satisfaction and chemical stability; in certain embodiments, -A- may be any disubstituted residue, such as oxygen or sulfur, or a trisubstituted residue, such as nitrogen, or a tetrasubstituted residue, such as carbon, or any other residue capable of forming two or more stable bonds; furthermore, M_5, M_6, M_7, M_8, M_9, M_{10}, M_{11}, M_{12}, M_{13} and M_{14} are each independently selected from the group consisting of carbon, nitrogen, sulfur, oxygen atoms and/or an atomic null such that a monocyclic or bicyclic ring system providing valence satisfaction and chemical stability are achieved;

furthermore, single and multiple substitutions by the substituent(s) Y at positions $M_5 - M_{14}$ on the above designated carbon, nitrogen and sulfur atoms may be hydrogen or halogen, such as fluorine, chlorine or bromine, or substituted oxygen-, carbon-, nitrogen- or sulfur-linked substituents including methyl, ethyl, isopropyl, higher alkyl and aryl substituents, hydroxyl, sulfhydryl, alkyl and aryl ethers and thioethers, amine, methyl amine, dimethyl amine and higher alkyl and aryl secondary and tertiary amines such that valence satisfaction and chemical stability are achieved; R_2 and R_3 are each independently chosen to be hydrogen, oxygen-, carbon-, nitrogen- or sulfur-linked substituents including methyl, ethyl, isopropyl, higher alkyl and aryl substituents, hydroxyl, sulfhydryl, alkyl and aryl ethers and thioethers, amine, methyl amine, dimethyl amine and higher alkyl and aryl secondary and tertiary amines for valence satisfaction; R_2 and R_3 may be covalently linked to give a set of monocyclic *aza*-cycles; R_4 and $R_{4'}$ may be independently hydrogen, carbon-, oxygen-, nitrogen- or sulfur-linked substituents including methyl, ethyl, isopropyl, higher alkyl and aryl substituents, hydroxyl, sulfhydryl, alkyl and aryl ethers and thioethers, amine, methyl amine, dimethyl amine and higher alkyl and aryl secondary and tertiary amines, wherein in all cases, substitutions are chosen such that valence satisfaction and chemical stability are achieved; R_4 and $R_{4'}$ may be covalently linked to give a set of cyclic compounds;

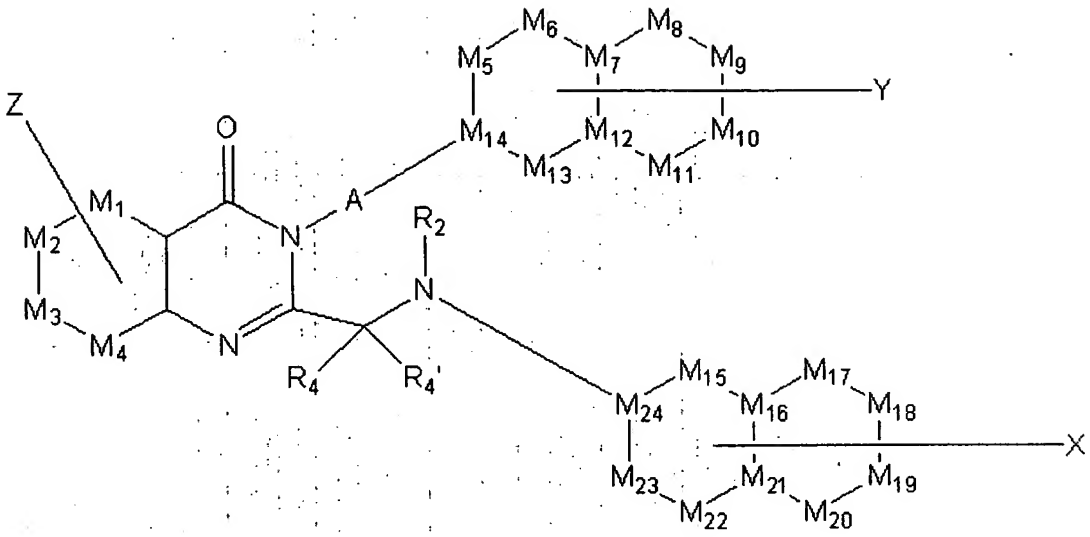
Formula VI



where M_1, M_2, M_3 and M_4 are each independently selected from the group consisting of carbon, nitrogen, sulfur, oxygen residue and/or an atomic null such that a fused bicyclic ring system providing valence satisfaction and chemical stability is achieved, single and multiple substitutions by the substituent(s) Z at positions M_1 – M_4 on the above designated carbon, nitrogen and sulfur atoms may be hydrogen or halogen, such as fluorine, chlorine or bromine, or carbon-linked substituents such as methyl, ethyl, propyl, isopropyl and higher alkyl and aryl analogs, or nitrogen-linked substituents including amine, methylamine, dimethylamine or higher secondary or tertiary alkyl or aryl amines, or oxygen-, sulfur- and selenium-linked substituents including hydroxyl, sulfhydryl and selenylhydryl and alkyl and aryl ether analogs thereof, or silicon-, phosphorus- or boron-linked substituents including alkyl or aryl substitutions at these residues, wherein in all cases, linking residues and linking-atom substituents are as required for valence satisfaction and chemical stability; in certain embodiments, -A- may be any disubstituted residue, such as oxygen or sulfur, or a trisubstituted residue, such as nitrogen, or a tetrasubstituted residue, such as carbon, or any other atom capable of forming two or more stable bonds; furthermore, M_5, M_6, M_7, M_8, M_9, M_{10}, M_{11}, M_{12}, M_{13} and M_{14} are each independently selected from the group consisting of

carbon, nitrogen, sulfur, oxygen atoms and/or an atomic null such that a monocyclic or bicyclic ring system providing valence satisfaction and chemical stability are achieved; single and multiple substitutions by the substituent(s) Y at positions M_5 – M_{14} on the above designated carbon, nitrogen and sulfur atoms may be hydrogen or halogen, such as fluorine, chlorine or bromine, or substituted oxygen-, carbon-, nitrogen- or sulfur-linked substituents including methyl, ethyl, isopropyl, higher alkyl and aryl substituents, hydroxyl, sulfhydryl, alkyl and aryl ethers and thioethers, amine, methyl amine, dimethyl amine and higher alkyl and aryl secondary and tertiary amines such that valence satisfaction and chemical stability are achieved; R_2 and R_3 are each independently chosen to be hydrogen, oxygen-, carbon-, nitrogen- or sulfur-linked substituents including methyl, ethyl, isopropyl, higher alkyl and aryl substituents, hydroxyl, sulfhydryl, alkyl and aryl ethers and thioethers, amine, methyl amine, dimethyl amine and higher alkyl and aryl secondary and tertiary amines for valence satisfaction; R_2 and R_3 may be covalently linked to give a set of monocyclic *aza*-cycles; wherein in certain embodiments, R_2 is a moiety containing two residues other than hydrogen and no more than eight residues other than hydrogen; M_{15}-M_{24} may be independently carbon, nitrogen, oxygen or sulfur or any residue other than hydrogen or halogen and, in certain embodiments, may be either a moiety where M_{15}, M_{16}, M_{17}, M_{18}, M_{19}, M_{20}, M_{21}, M_{22}, M_{23} and M_{24} are each independently selected from the group consisting of carbon, nitrogen, sulfur, oxygen residue and/or an atomic null such that a monocyclic or bicyclic ring system providing valence satisfaction and chemical stability are achieved; R_4 and $R_{4'}$ may be independently hydrogen, carbon, oxygen, nitrogen or sulfur with substitutions as needed for valence satisfaction; R_4 and $R_{4'}$ may be covalently linked to give a set of cyclic compounds;

Formula VII

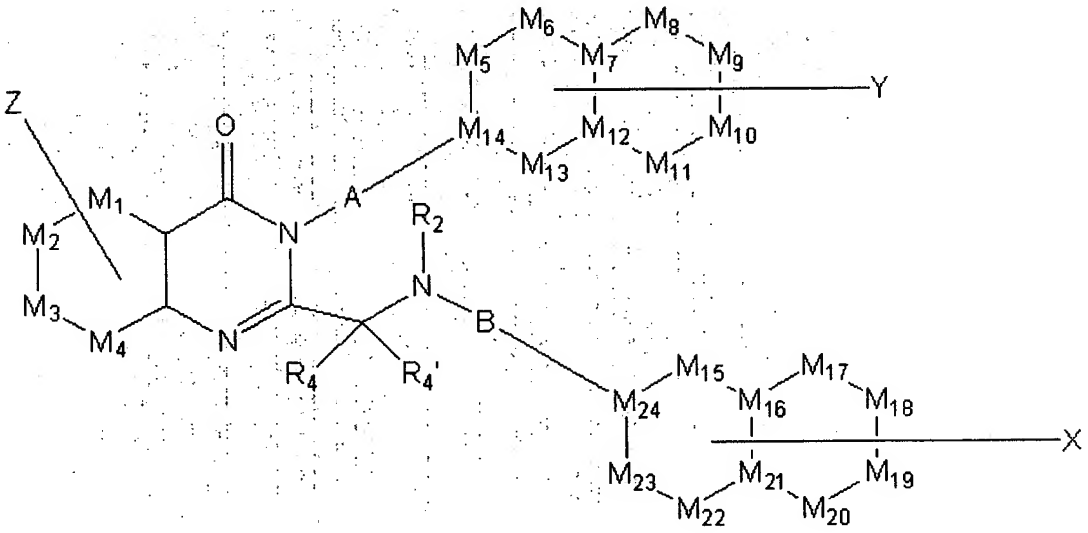


where M_1, M_2, M_3 and M_4 are each independently selected from the group consisting of carbon, nitrogen, sulfur, oxygen atoms and/or an atomic null such that a fused bicyclic ring system providing valence satisfaction and chemical stability is achieved; single and multiple substitutions by the substituent(s) Z at positions M_1 – M_4 on the above designated carbon, nitrogen and sulfur residues may be hydrogen or halogen, such as fluorine, chlorine or bromine, or carbon-linked substituents such as methyl, ethyl, propyl, isopropyl and higher alkyl and aryl analogs, or nitrogen-linked substituents including amine, methylamine, dimethylamine or higher secondary or tertiary alkyl or aryl amines, or oxygen-, sulfur- and selenium-linked substituents including hydroxyl, sulfhydryl and selenylhydryl and alkyl and aryl ether analogs thereof, or silicon-, phosphorus- or boron-linked substituents including alkyl or aryl substitutions at these atoms, wherein in all cases, linking residues and linking-atom substituents are as required for valence satisfaction and chemical stability, wherein in certain embodiments, -A- may be any disubstituted residue, such as oxygen or sulfur, or a trisubstituted residue, such as nitrogen, or a tetrasubstituted residue, such as carbon, or any other residuecapable of forming two or more stable bonds; furthermore, M_5, M_6, M_7, M_8, M_9, M_{10}, M_{11}, M_{12}, M_{13} and M_{14} are each independently selected from the group consisting of carbon, nitrogen, sulfur, oxygen residueand/or an atomic null such that a monocyclic or

bicyclic ring system providing valence satisfaction and chemical stability are achieved; single and multiple substitutions by the substituent(s) Y at positions M_5 – M_{14} on the above designated carbon, nitrogen and sulfur residue may be hydrogen or halogen, such as fluorine, chlorine or bromine, or substituted oxygen-, carbon-, nitrogen- or sulfur-linked substituents including methyl, ethyl, isopropyl, higher alkyl and aryl substituents, hydroxyl, sulfhydryl, alkyl and aryl ethers and thioethers, amine, methyl amine, dimethyl amine and higher alkyl and aryl secondary and tertiary amines such that valence satisfaction and chemical stability are achieved; R_2 and R_3 are each independently chosen to be hydrogen, oxygen-, carbon-, nitrogen- or sulfur-linked substituents including methyl, ethyl, isopropyl, higher alkyl and aryl substituents, hydroxyl, sulfhydryl, alkyl and aryl ethers and thioethers, amine, methyl amine, dimethyl amine and higher alkyl and aryl secondary and tertiary amines for valence satisfaction; R_2 and R_3 may be covalently linked to give a set of monocyclic *aza*-cycles, wherein in certain embodiments, R_2 is a moiety containing two residues other than hydrogen and no more than eight residues other than hydrogen; M_{15}-M_{24} may be independently carbon, nitrogen, oxygen or sulfur or any residue other than hydrogen or halogen and, in certain embodiments, may be either a moiety where M_{15}, M_{16}, M_{17}, M_{18}, M_{19}, M_{20}, M_{21}, M_{22}, M_{23} and M_{24} are each independently selected from the group consisting of carbon, nitrogen, sulfur, oxygen residues and/or an atomic null such that a monocyclic or bicyclic ring system providing valence satisfaction and chemical stability are achieved; single and multiple substitutions by substituent(s) X at positions M_{15} – M_{24} on the above designated carbon, nitrogen and sulfur atoms may be hydrogen or halogen, such as fluorine, chlorine or bromine, or substituted oxygen-, carbon-, nitrogen- or sulfur-linked substituents including methyl, ethyl, isopropyl, higher alkyl and aryl substituents, hydroxyl, sulfhydryl, alkyl and aryl ethers and thioethers, amine, methyl amine, dimethyl amine and higher alkyl and aryl secondary and tertiary amines such that valence satisfaction and chemical stability are achieved; R_2 and R_3

are each independently chosen to be hydrogen, oxygen-, carbon-, nitrogen- or sulfur-linked substituents including methyl, ethyl, isopropyl, higher alkyl and aryl substituents, hydroxyl, sulfhydryl, alkyl and aryl ethers and thioethers, amine, methyl amine, dimethyl amine and higher alkyl and aryl secondary and tertiary amines for valence satisfaction; R_2 and R_3 may be covalently linked to give a set of monocyclic *aza*-cycles; R_4 and $R_{4'}$ may be independently hydrogen, carbon-, oxygen-, nitrogen- or sulfur-linked substituents including methyl, ethyl, isopropyl, higher alkyl and aryl substituents, hydroxyl, sulfhydryl, alkyl and aryl ethers and thioethers, amine, methyl amine, dimethyl amine and higher alkyl and aryl secondary and tertiary amines, wherein in all cases, substitutions are chosen such that valence satisfaction and chemical stability are achieved; R_4 and $R_{4'}$ may be covalently linked to give a set of cyclic compounds;

Formula VIII

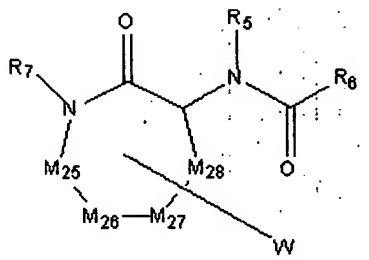


where M_1, M_2, M_3 and M_4 are each independently selected from the group consisting of carbon, nitrogen, sulfur, oxygen residue and/or an atomic null such that a fused bicyclic ring system providing valence satisfaction and chemical stability is achieved; single and multiple substitutions by the substituent(s) Z at positions M_1 – M_4 on the above designated

carbon, nitrogen and sulfur residues may be hydrogen or halogen, such as fluorine, chlorine or bromine, or carbon-linked substituents such as methyl, ethyl, propyl, isopropyl and higher alkyl and aryl analogs, or nitrogen-linked substituents including amine, methylamine, dimethylamine or higher secondary or tertiary alkyl or aryl amines, or oxygen-, sulfur- and selenium-linked substituents including hydroxyl, sulfhydryl and selenylhydryl and alkyl and aryl ether analogs thereof, or silicon-, phosphorus- or boron-linked substituents including alkyl or aryl substitutions at these atoms, wherein in all cases, linking atoms and linking-atom substituents are as required for valence satisfaction and chemical stability; wherein in certain embodiments, -A- may be any disubstituted residue, such as oxygen or sulfur, or a trisubstituted residue, such as nitrogen, or a tetrasubstituted residue, such as carbon, or any other residue capable of forming two or more stable bonds; furthermore, M_5, M_6, M_7, M_8, M_9, M_{10}, M_{11}, M_{12}, M_{13} and M_{14} are each independently selected from the group consisting of a carbon, nitrogen, sulfur, oxygen residue and/or an atomic null such that a monocyclic or bicyclic ring system providing valence satisfaction and chemical stability are achieved; single and multiple substitutions by the substituent(s) Y at positions M_5 – M_{14} on the above designated carbon, nitrogen and sulfur atoms may be hydrogen or halogen, such as fluorine, chlorine or bromine, or substituted oxygen-, carbon-, nitrogen- or sulfur-linked substituents including methyl, ethyl, isopropyl, higher alkyl and aryl substituents, hydroxyl, sulfhydryl, alkyl and aryl ethers and thioethers, amine, methyl amine, dimethyl amine and higher alkyl and aryl secondary and tertiary amines such that valence satisfaction and chemical stability are achieved; R_2 and R_3 are each independently chosen to be hydrogen, oxygen-, carbon-, nitrogen- or sulfur-linked substituents including methyl, ethyl, isopropyl, higher alkyl and aryl substituents, hydroxyl, sulfhydryl, alkyl and aryl ethers and thioethers, amine, methyl amine, dimethyl amine and higher alkyl and aryl secondary and tertiary amines for valence satisfaction; R_2 and R_3 may be covalently linked to give a set of monocyclic *aza*-cycles; R_2

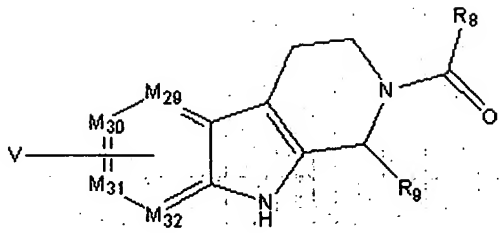
may be a moiety containing two residues other than hydrogen and no more than eight residues other than hydrogen, wherein in certain embodiments, -B- may be any disubstituted residue, such as oxygen or sulfur, or a trisubstituted residue, such as nitrogen, or a tetrasubstituted residue, such as carbon, or any other residue capable of forming two or more stable bonds; linker -B- may be chosen as an atomic null through an octa-atomic set of non-hydrogen atoms such that valence satisfaction and chemical stability are achieved; furthermore, M_{15}-M_{24} may be independently carbon, nitrogen, oxygen or sulfur or any residue other than hydrogen or halogen and, in certain embodiments, may be either a moiety where M_{15}, M_{16}, M_{17}, M_{18}, M_{19}, M_{20}, M_{21}, M_{22}, M_{23} and M_{24} are each independently selected from the group consisting of a carbon, nitrogen, sulfur, oxygen residue and/or an atomic null such that a monocyclic or bicyclic ring system providing valence satisfaction and chemical stability are achieved; single and multiple substitutions by substituent(s) X at positions M_{15} – M_{24} on the above designated carbon, nitrogen and sulfur residue may be hydrogen or halogen, such as fluorine, chlorine or bromine, or substituted oxygen-, carbon-, nitrogen- or sulfur-linked substituents including methyl, ethyl, isopropyl, higher alkyl and aryl substituents, hydroxyl, sulfhydryl, alkyl and aryl ethers and thioethers, amine, methyl amine, dimethyl amine and higher alkyl and aryl secondary and tertiary amines such that valence satisfaction and chemical stability are achieved, wherein in all cases, substitutions are chosen such that valence satisfaction and chemical stability are achieved; R_4 and $R_{4'}$ may be covalently linked to give a set of cyclic compounds;

Formula IX



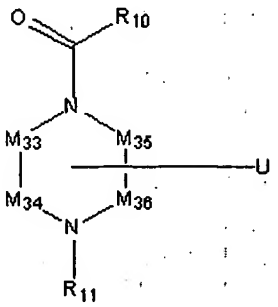
where M_{25} – M_{28} are independently selected from the group consisting of carbon, nitrogen, sulfur, oxygen residue and/or an atomic null such that a mono-cyclic system of at least 4 residues and no more than 7 residues displaying valence satisfaction and chemical stability is achieved; substitution(s) (W) at positions M_{25} – M_{28} on the above residues may be hydrogen or halogen, such as fluorine, chlorine or bromine, or carbon-linked substituents such as methyl, ethyl, propyl, isopropyl and higher alkyl and aryl analogs, or nitrogen-linked substituents including amine, methylamine, dimethylamine or higher secondary or tertiary alkyl or aryl amines, or oxygen-, sulfur- and selenium-linked substituents including hydroxyl, sulfhydryl and selenylhydryl and alkyl and aryl ether analogs thereof, or silicon-, phosphorous- or boron-linked substituents including alkyl or aryl substitutions at these residues, wherein in all cases, linking atoms and linking-atom substituents are as required for valence satisfaction and chemical stability; R_5 may be any carbon-linked moiety including methyl, ethyl, benzyl, aryl and substituted analogs thereof; R_6 is independently chosen to be a carbon- or nitrogen-linked substituent such that valence satisfaction and chemical stability are achieved; R_7 is hydrogen or a carbon-linked substituent such as methyl, ethyl, isopropyl, higher alkyl, benzyl or aryl and substituted analogs thereof;

Formula X



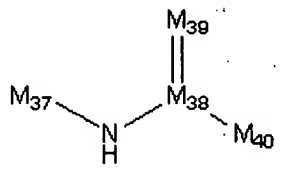
where M_{29} – M_{32} are independently selected from the group consisting of carbon, nitrogen, sulfur, oxygen residue and/or an atomic null such that a tri-cyclic system displaying valence satisfaction and chemical stability is achieved; substitution(s) (V) at positions M_{29} – M_{32} on the above atoms may be hydrogen or halogen, such as fluorine, chlorine or bromine, or carbon-linked substituents such as methyl, ethyl, propyl, isopropyl and higher alkyl and aryl analogs, or nitrogen-linked substituents including amine, methylamine, dimethylamine or higher secondary or tertiary alkyl or aryl amines, or oxygen-, sulfur- and selenium-linked substituents including hydroxyl, sulfhydryl and selenylhydryl and alkyl and aryl ether analogs thereof, or silicon-, phosphorous- or boron-linked substituents including alkyl or aryl substitutions at these atoms, wherein in all cases, linking atoms and linking-atom substituents are as required for valence satisfaction and chemical stability; R_8 may be any carbon- or nitrogen-linked moiety including methyl, ethyl, benzyl, aryl and substituted analogs thereof; R_9 is independently chosen to be a carbon-linked substituent such as methyl, ethyl, isopropyl, higher alkyl, benzyl or aryl and substituted analogs thereof; R_8 and R_9 may be covalently joined to give a cyclic structure;

Formula XI



where M_{33} – M_{36} are selected from the group consisting of carbon or nitrogen, and/or atomic null(s) such that a monocyclic or acyclic system displaying valence satisfaction and chemical stability is achieved; substitution(s) (U) at positions M_{33} – M_{36} on the above residues may be hydrogen or carbon-linked substituents such as methyl, ethyl, propyl, isopropyl and higher alkyl and aryl analogs, or nitrogen-linked substituents including amine, methylamine, dimethylamine or higher secondary or tertiary alkyl or aryl amines, or oxygen-, sulfur- and selenium-linked substituents including hydroxyl, sulfhydryl and selenylhydryl and alkyl and aryl ether analogs thereof, or silicon-, phosphorus- or boron-linked substituents including alkyl or aryl substitutions at these atoms, wherein in all cases, linking atoms and linking-atom substituents are as required for valence satisfaction and chemical stability; R_{10} may be any carbon- or nitrogen-linked moiety including methyl, ethyl, benzyl, aryl and substituted analogs thereof; R_{11} is independently chosen to be a carbon-linked substituent such as methyl, ethyl, ethyl amine, isopropyl, higher alkyl, benzyl or aryl and substituted analogs thereof;

Formula XII



where M_{37} is selected from the group consisting of substituted carbon, M_{38} is selected from the group consisting of carbon and sulfur and M_{39} is selected from either oxygen or sulfur and M_{40} is selected from either substituted carbon or substituted nitrogen to provide a system displaying valence satisfaction and chemical stability; M_{37} and M_{40} may be covalently joined to provide a cyclic system; substitution(s) at positions M_{37} and M_{40} on the above residues may be hydrogen or carbon-linked substituents such as methyl, ethyl, propyl, isopropyl and higher alkyl and aryl analogs, or nitrogen-linked substituents including amine, methylamine, dimethylamine or higher secondary or tertiary alkyl or aryl amines, or oxygen-, sulfur- and selenium-linked substituents including hydroxyl, sulfhydryl and selenylhydryl and alkyl and aryl ether analogs thereof, or silicon-, phosphorus- or boron-linked substituents including alkyl or aryl substitutions at these residues, wherein in all cases, linking atoms and linking-atom substituents are as required for valence satisfaction and chemical stability.

2. (Withdrawn) The method according to claim 1, wherein the compound is any one of Compound No.1 through 188 as set forth in Tables 2 to 5.

3. (Withdrawn) The method according to claim 2, wherein the compound belonging to Formulae I, II, III, IV, V, VI, VII, or VIII is Compound No. 1-5, 7, 11, 13-15, 17-24, 26, 28-31, 42-48, 51, 55-106, 173, 174-179, 184, 185, or 186.

4. (Withdrawn) The method according to claim 3, wherein the compound is Compound No. 28, 173, 184, or 185.

5. (Withdrawn) The method according to claim 2, wherein the compound belonging to Formula IX is Compound No. 33, 50, 166-172, 180-183, or 188.

6. (Withdrawn) The method according to claim 5, wherein the compound is Compound No.182 or 188.

7. (Withdrawn) The method according to claim 2, wherein the compound belonging to Formula X is Compound No. 8, 25, 115, 118, 120, 122-128, 130-132, or 134.

8. (Withdrawn) The method according to claim 7, wherein the compound is Compound No. 118 or 125.

9. (Withdrawn) The method according to claim 2, wherein the compound belonging to Formula XI is Compound No. 35, 107-113, or 114.

10. (Withdrawn) The method according to claim 9, wherein the compound is Compound No. 107 or 109.

11. (Withdrawn) The method according to claim 2, wherein the compound belonging to Formula XII is Compound No. 6, 9, 10, 12, 16, 27, 32, 34, 36-41, 49, 52-54, 116, 117, 119, 121, 129, 133, 135-165, or 187.

12. (Withdrawn) The method according to claim 1, comprising

(i) testing a bodily sample from the subject for aberrant expression of MUC1; and

(ii) treating the subject in need of the compound with the compound.

13. (Withdrawn) The method according to claim 12, wherein the compound belongs to Formulae I, II, III, IV, V, VI, VII, or VIII.

14. (Withdrawn) The method according to claim 12, wherein the compound belongs to Formulae IX, X, XI, or XII.

15. (Withdrawn) The method according to claim 1, wherein aberrant expression is loss of clustering pattern of MUC1 on apical border of cell and uniform distribution over cell surface and/or over-expression of MUC1.

16. (Withdrawn) The method according to claim 12, wherein aberrant expression is membrane staining that uniformly covers a cell when contacted with an agent or antibody that recognizes nat-PSMGFR, var-PSMGFR or ESPSMGFR peptide.

17. (Currently amended) A method for treating or preventing ~~MUC1-positive~~ Mucin 1 (MUC1)-positive cancers selected from breast, lung, colon and prostate cancer comprising:

(i) testing a bodily sample for aberrant expression of MUC1; and

(ii) treating the patient with a compound comprising a ~~MGFR~~ MUC1 Growth Factor Receptor (MGFR) binding region and ~~metal chelator group~~ chelates metal wherein the metal is zinc, magnesium or nickel.

18. (Original) The method according to claim 17, wherein the compound inhibits a metal-dependent protein.

19. (Original) The method according to claim 18, wherein the protein is a kinesin.

20. (Currently amended) The method according to ~~claim 17~~ claim 18, wherein the metal-dependent protein is an enzyme that cleaves MUC1.

21. (Original) The method according to claim 20, wherein the enzyme is matrix metalloprotease.

22. (Currently amended) The method according to claim 21, wherein the enzyme is ~~MT1-MMP~~ membrane tethered matrix metalloproteinase (MT1-MMP) or ~~MMP-14~~ matrix metalloproteinase (MMP)-14.

23. (Withdrawn) A method for diagnosing cancer cells, comprising: (i) contacting a population of cells with a MGFR specific ligand bound to a signal generating label; and (ii) assaying for binding of the ligand to MGFR on the surface of the cells, in which the presence of uniform distribution of the signal over the entire cell surface when contacted with the ligand indicates that the cells are cancerous.